

conscious love of country life so often (and sometimes so mawkishly) expressed, is perhaps one of the most significant of modern characteristics.

Two factors play a highly important part in the movement: the purely personal factor, a desire on the part of the individual to get away from the artificiality of the city into the green fields and the woods, and the social factor, a realisation that only by making the most of our natural resources and getting the greatest possible produce out of the land can the community be established on a sound basis. We may thus roughly divide the literature of the subject under two main headings. Several of Prof. Bailey's books deal with the second aspect of the problem; in the present he takes a complete survey of the whole field.

The country-life movement, he states, is the working out of the desire to make rural civilisation as effective and satisfying as any other civilisation. It is thus to be an end in itself, and not merely a way of raising more food, or of absorbing city undesirable, or increasing the price of land, although all these things may happen as secondary consequences. The Commission on Country Life appointed by President Roosevelt in 1908 was the first organised expression of the movement in the States, and it found that agriculture is not commercially as profitable as it is entitled to be, and that the social conditions of the open country are far short of their possibilities. Three great campaigns were recommended: a survey of rural resources; the organising of a nationalised extension work; and the inauguration of a general campaign of rural progress. All are, in Prof. Bailey's view, equally necessary; every rural community needs to have a programme of its own carefully worked out, and this programme should rest on a physical valuation. It is high time that this work was put in hand; much of the necessary information has been collected by the agricultural colleges, and in general men are available for carrying out these great constructive plans once they are evolved.

But some very clear thinking must first be done, and a good deal of confusion must be brushed away. Especially must we avoid one very common error—the idea that suburbanism and gardening constitute country life. It is to the development of the village, not as the suburb of a great city, but as the place where the inhabitants actually earn their livelihood, that Prof. Bailey looks for future progress. As a first step farming has to be made more profitable by eliminating non-effective charges (the middleman, according to Prof. Bailey, secures over 50 per cent. of the proceeds in some cases), and more power, political, social, and commercial, must be given to the village. Further, the village and city must not compete. "We can never again be a rural people. We want the cities to grow." But it is also necessary to impress upon the cities the fact that they stand to gain by having an efficient village society, a new social order evolved in the open country, to which every farmer must contribute his share. Whilst the tendency of the city is to make eight-hour men and clock watchers, this new society must aim higher, for its business is the struggle with nature and the conquest of the earth.

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ELEMENTARY METEOROLOGY.

Weather Science: an Elementary Introduction to Meteorology. By F. W. Henkel. Pp. 335. (London: T. Fisher Unwin, 1911.) Price 6s. net.

IN elementary text-books of meteorology it is the custom to begin with a description of the action of common instruments like the barometer and thermometer, and of common facts like the apparent motions of the sun, and to continue the theoretical development as far as elementary mechanics and thermodynamics. Exigencies of space prevent a complete exposition, and it is found necessary to omit explanations at some stages. Unfortunately, authors almost invariably choose the later stages for the omissions; there they give merely the bald statement of facts, with little or no explanation. It would seem desirable to omit certain introductory matters which can be found in all elementary text-books on physiography or physics, and to reserve the space for a fuller treatment of the special problems of the atmosphere. In the book before us, the author describes in detail the apparent motions of the sun, but assumes that his readers understand the term "latent heat," and gives no explanation of the effect of change of pressure on moist air.

Nevertheless, Mr. Henkel has produced an interesting and readable book. He has quoted freely from authorities such as Abercromby, Scott, Waldo, Maury, and Inwards, and has, in some cases, added paragraphs and chapters giving a description of more recent work. The additions are not all as complete as could be desired, and they usually appear to be culled from isolated books and papers, producing a somewhat fragmentary result in places. Thus, a reference is made to Simpson's new theory of thunderstorms as it appeared briefly in NATURE, but other new theories are not mentioned.

Perhaps the most serious criticism that would occur to a reader is the almost complete absence of diagrams, and more especially of charts and maps. The book is by no means free from illustrations, but they are almost entirely reserved for instruments and cloud forms, the latter being particularly good. We doubt whether a reader new to the subject would understand clearly the verbal descriptions of the distribution of mean pressure, air and sea temperatures, and ocean currents; and the explanations of Buys Ballot's Law and of the types of pressure distribution are incomplete without illustrative examples.

The author has allowed himself to build up a complete story under the general heading of each chapter, irrespective of whether a part of the story appears elsewhere in another connection. Thus, Buys Ballot's law is stated no less than three times in three different chapters. The reiteration of the fundamental law of dynamical meteorology has its advantages, but other repeated statements are open to question. Among these is one affirming that rain in mountainous districts is due to the cooling effect of the summits on the warm moist air passing over them. Meteorologists are not yet agreed as to whether a mountain peak is in general cooler than the surrounding air, but even allowing a considerable temperature difference,

the dynamical cooling due to the forced ascent of the air and consequent reduction of its pressure is a more effective rain-producing agent.

We have noted a few misprints and mis-statements, but in general the principles as stated are sound. The book is well printed on good paper, and there is a useful index; but the binding of the copy that we have has already given way. R. C.

A GARDEN OF HERBS.

The Herb-Garden. By Frances A. Bardswell. Pp. viii + 173 + plates. (London: A. and C. Black, 1911.) Price 7s. 6d. net.

ONE of the most delightful charms of old English gardening must have been due to the numerous sweet-smelling and aromatic herbs that were commonly cultivated around the homesteads. The very earliest records of gardening were supplied us by the ancient herbalists who cultivated their simples for medicinal purposes or for the pretty sentiments and conceits that legend had associated with them, but there is sufficient evidence that the herbalists took pleasure in their plants for the further reason that many of them possessed the qualities of beauty and fragrance. As we read Gerard and Parkinson or Culpepper, we seem to breathe the atmosphere of the herbalist's garden, laden as it was with the delightful perfumes of lavender, balm, rosemary, southernwood, and many other plants the names of which are scarcely known to modern gardeners, much less their distinctive qualities.

The comparative neglect of the herbs which fire the enthusiasm of the author may be traced to a feeling allied to contempt, directly due to the fact that modern medical science has exposed the fallacious character of the beliefs formerly entertained in respect to their healing qualities. The contempt was natural enough, although unscientific and illogical, as is the case with most things which are merely the results of reaction. We are only just beginning to realise that, even when it is admitted that the garden simples are not "heal-alls," yet they have a wonderful interest for those who care to study them and admit them to their gardens.

At this point Miss Bardswell's book comes to show how we may make the most of the herbs from the point of view of the decorative gardener. It convinces the reader that many of the species have claims which should entitle them to every consideration—fragrance, romance, and economic value in the kitchen, still-room, and nursery. The pictures by the Hon. Florence Amherst and Miss Forrest are a pretty feature of the volume, and they greatly assist the author in presenting her case, for they show that, if but few of the sweet herbs possess such brilliant flowers as, for example, the bergamot, nevertheless many of them are sufficiently decorative to provide charming subjects for the artist's brush. And what about their cultivation? The author gives all the information necessary for any novice who wishes to engage in their culture. There are directions for planting, propagation, harvesting, and drying, with other details. We have known many cases where herbs were given a prominent place in the garden,

and every care expended on their cultivation, but they were not utilised indoors, as they might be, because there appeared to be a lack of knowledge as to the time proper for cutting them and the care they require until they are perfectly dry.

The first things to consider in the formation of a herb garden are what site to choose and what style to make the beds. The author has something to say on these matters, but she is not inclined to be rigid in her recommendations. Beyond insisting upon the necessity for sunshine, she does not lay down rules as to the form of beds, she pleads for the cultivation of the herbs and is content if they are planted in beds or in ordinary flower borders, remarking that one of the best collections of herbs she has seen was grown in a kitchen garden. For ourselves, the interest we have in the plants is partly for their fragrance but equally for the sentiment that belongs to them in the legends. Consequently we admire them most when they overlay the confined borders of the narrow and oblong beds in the old English garden, with paved paths on which the thyme and other low-growing species find homes in the soil between the flags, the whole surrounded with venerable walls supporting old-fashioned climbers, including the fragrant myrtle, honeysuckle, and other species reminiscent of a long-past age. Such a garden we saw quite recently in North Wales, where the lavender bushes were three feet high and as much through.

PHYSICAL CHEMISTRY FOR THE GEOLOGIST.

Vorlesungen über die chemische Gleichgewichtslehre und ihre Anwendung auf die Probleme der Mineralogie, Petrographie, und Geologie. By Prof. R. Marc. Pp. vi + 212. (Jena: Gustav Fischer, 1911.) Price 5 marks.

IN this little volume Prof. Marc gives the substance of a course of lectures delivered at the University of Jena, dealing, as the title announces, with the theory of chemical equilibrium in its application to mineralogical and geological problems. We gather from the preface that these lectures were addressed to students not previously acquainted with the modern developments of physical chemistry. It is to be presumed that the material has undergone considerable condensation for the purpose of publication, for a student in this situation must read very closely if he is to obtain the full benefit of the book before us. He will be aided by the simplicity of the general plan, and by the author's clear method of presentation, while the numerous well-chosen references will enable him to pursue farther any particular part of the subject.

The first lecture treats of the general conception of chemical equilibrium, and the second introduces the reader to the law of mass action and the phase rule. The next two lectures deal with the conditions of equilibrium in systems of one component, the illustrations being drawn so far as possible from cases which are of importance to the geologist. Thus the dependence of melting-point on pressure is considered with special reference to the case of ice. Polymorphism